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## PRODUCTION TRENDS IN THE USSR

### I. Position of the Economy of the USSR as a Part of the Soviet Bloc Economy

Although existing estimates of gross national product for the Soviet economy (including China) are of dubious reliability, a few generalization can be made.

1. Gross national product of the USSR probable accounts for about two-thirds to three-fourths of total Bloc gross national product.

2. The behavior of Bloc economic activity since 1946, the first year of the Bloc's existence,\* in general has conformed closely to postwar economic expansion in the USSR.

3. The Bloc economy will probable experience a slower rate of economic expansion between 1951 and 1957 than will the Soviet economy. This estimated difference reflects limitations to expansion of Satellite agriculture and consumer goods industries, an increasing emphasis on exportation of natural resources in the USSR, and rapid expansion of defense production in the USSR.

### II. Soviet Gross National Product

With the introduction in 1928 of the first of the Five Year Plans, intensified industrialization of the USSR was begun. During the period of the first two Five Year Plans (1928-1938) the average annual rate of growth for gross national product was nearly 7 percent\*\* a rate greatly in excess of interwar growth in all other major powers. Even the rapid growth in Japan prior to World War I did not exceed this rate, and neither the US nor Germany has ever maintained such a high rate for a comparable period. The last prewar year devoted primarily to industrial expansion was 1938. From then until World War II

\* Czechoslovakian and Chinese production are included for consistency.

\*\* Growth rates are calculated on a compound basis.

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defense considerations demanded an increasingly larger share of the country's resources. As defense outlays mushroomed, investment activities were curtailed, and industrial expansion nearly ceased (see Appendix A, Chart 3). Following the German invasion, losses of territory and destruction from war drastically reduced industrial and agricultural output. By 1944, gross national product was only 70 percent of the 1940 level.

A. Postwar Era.

Postwar recovery was rapid. By 1948, prewar levels had been regained, and, by 1951, gross national product was about one third\* greater than in 1948. While Soviet gross national product was growing at an average annual rate of 10 to 11 percent during these 3 years, US gross national product was growing at a rate of about 5 percent.

The high postwar rate of growth in the USSR has been due to a number of factors, including the following:

1. The intensity and direction of investment have been planned to promote rapid industrial expansion. In 1948 the USSR was devoting about 24 percent of its gross national product to gross investment.\*\* By 1951 the investment share had risen to about 27 percent. In contrast, gross investment in the US accounted for about 20 percent of gross national product in both 1948 and 1951. Moreover, because of the differences in stock and age structure of capital in the two countries a much larger portion represents net investment in the USSR than in the US. The Soviet pattern of investment emphasizes producer goods industries, particularly the metals and metal-products industries, whereas in the US a larger

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\*\* Gross investment includes capital replacement as well as net increases in capital.

a larger proportion of investment is made in consumer goods industries, housing and public works.

2. During the war years, priority was given to expansion of metals production in the Urals and West Siberia. When the metallurgical plants in areas occupied by the Germans were recovered and reconstructed, the Soviet possessed a ferrous and nonferrous production capacity far larger than prewar capacity.

3. The USSR received substantial amounts of industrial plants and equipment in the form of war booty and reparations.

4. Aid received from the US and the UK provided the USSR with prototypes embodying the most advanced Western technical developments.

5. Vocational and professional training has been heavily stressed, with a resulting boon to productivity. The skilled labor force\* increased by about 30 percent from 1948 through 1951, although total population rose by only about 5 percent.

B. Prospects for Future Expansion, 1957

It is estimated that in the 6 years from 1951 to 1957, gross national product of the USSR will rise by 35 to 50 percent or to nearly double the prewar (and 1948) level. On the basis of this projection, the average annual rate of growth would be about 5 to 7 percent, as contrasted with 10 to 11 percent for the period 1948-51. In comparison with the expected annual rate of growth of about 3 percent\*\* for the US, however, the Soviet rate will remain remarkably high. The projected annual rate of growth for the USSR is slightly less than that experienced over the entire period from 1928 through 1940.

Among the explanations for the anticipated decline in the growth rate are the following.

\* Defined as labor given special vocational training and possessing higher qualifications. Skilled labor would fall in wage class four and above of the official labor classification schedule. For a breakdown of the labor force see Appendix E, Table 5.  
\*\* See US Department of Commerce, Markets After the Defense Expansion, 1952; also The President's Materials Policy Commission, Resources for Freedom, 1952.

1. The windfall factors inherited from World War II are no longer present, the flow of reparations has been moderated, the effect of the wartime-enlarged metals base has been realized, the skilled labor force is increasing at a more moderate rate, and the benefits from borrowed technology are diminishing.

2. In agriculture and in many branches of industry, annual growth probably will, on the average, be constant in absolute terms; hence, as the base becomes larger, the percentage rate will fall.

3. As an economy matures, the marginal productivity of investment outlays can be expected to decline. In addition, a larger proportion of investment outlays must be used for capital replacement.

4. Since annual increments to the unskilled labor force have been large in the past, and the reserve of unemployed individuals has declined to relatively small proportions, therefore annual increments in the unskilled labor force probably will fall off during the period 1951-1957.

Even though factors contribution to high rates of growth are no longer present, the willingness of the Soviet leadership to devote a large, and annually increasing, proportion of Soviet resources to investment purposes should sustain growth rates higher than those of Western economies.

### III. Soviet Industry

#### 1. Postwar

During the 3.5 years following the end of World War II, industrial activity in the USSR was devoted primarily to restoration of facilities and to recovery from the low production levels of the war years. As might be expected in such circumstances, industrial expansion was rapid. By 1948, aggregate industrial output had regained its 1940 level (see Appendix A, Chart 3). The degree of recovery was by no means uniform for all sectors. Whereas production of producer goods was about 4 percent above its prewar level in 1948, production of consumer goods was about 13 percent below prewar.

Industrial output rose by almost 60 percent from 1948 to 1951. The average annual rate of growth for these 3 years was about 17 percent. Although the growth rate declined each year after 1948, it was still high in 1951 (around 14 percent) by most standards of comparison. For example, during this period the average annual rate of US industrial growth was about 5 percent. The high priority assigned in the USSR to producer goods and military end items continued. Production of producer goods increased by about 56 percent, to a level about three-quarters greater than prewar; military end items by about 93 percent, to a level two-thirds greater than prewar; and consumer goods by 36 percent, to a level about one-fifth greater than prewar.

#### 2. Prospects for the Future

It is estimated that industrial output in 1957 will be nearly two-thirds greater than in 1951. There would be more than two and one half

times industrial output in 1948. The decline in the rate of industrial growth which appeared following 1948 probably will continue in the 6 years after 1951. For the latter period, the average annual rate of growth of industrial production is estimated at about 8.5 percent, falling from about 11 percent in 1952 to about 7 percent in 1957. This estimated rate would be slightly higher than the average for the entire span of 1928-51, although much lower than the 17 percent average for the 1948-51 period. Since the annual rate of growth had fallen from about 19 percent in 1949 to about 14 percent in 1951, a continued gradual downward movement to 7 percent in 1957 seems plausible.\*

The differential pattern of growth rates projected for the period 1951-57 does not differ markedly in structure or in degree from the pattern of the postwar period. Industry will grow more rapidly than agriculture. Within industry the previous priority given to producer goods and military items probably will be retained. Although production in these categories probably will increase by about two-thirds and nine-tenths respectively, production of consumer goods probably will rise by only ~~one-third~~ <sup>one-third</sup>.

#### IV. Soviet Agriculture

The agricultural sector has not shared in the rapid growth of the Soviet economy following 1927, and the value of agricultural output in recent years has fallen to less than one-fourth of gross national product (see Chart 1).

##### A. Past Trends in Output

Over the entire span of years from 1927 to 1951 there was almost no increase in agricultural output (see Appendix A, Chart 21). Until the

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\* These estimates are believed accurate within one percentile. For example, the 8.5 percent average is probably no greater than 9.5 percent and no less than 7.5 percent.

mid-1930's, output was depressed by resistance to collectivization. Although there was improvement from the mid-1930's until the war, plan goals were consistently underfulfilled. The only significant gains were made in industrial crops (a small part of total agriculture in the USSR), output of which in 1940 was 40 percent greater than in 1928.

Prior to 1948, postwar recovery was hampered by adverse weather and shortages of farm equipment. Not until 1950 did output equal the levels of the late 1930's. As in the prewar period, postwar plan goals were not met, and the greatest achievements were in industrial crops.

B. Prospects for Future Agricultural Output: 1957

Within the period of this estimate, several major factors and forces will affect Soviet agricultural outputs in unpredictable ways, making it impossible to estimate agricultural output with confidence. The success of efforts to increase productivity through increased mechanization and greater use of fertilizers and irrigation is difficult to estimate. In addition, there is a possibility that institutional arrangements will be altered drastically, and the effect of such changes on output cannot be foreseen. For example, collective farms and the open markets for peasants' surplus produce may be eliminated.

The primary reason for believing that gains in agricultural output will be modest compared to industrial output gains is that soil and climate impose severe limitations to development. The best areas were already intensively cultivated before the first Plan was inaugurated. The only lands not cultivated are of marginal utility. Yields per acre can be improved, but only gradually with extensive use of fertilizers and expansion of irrigation facilities. Availability of feed will place a

ceiling on the increase in live stock numbers.

The best possible estimate is that, aside from fluctuations due to weather, agricultural output will increase by about 15 to 25 percent between 1951 and 1957, with larger gains in industrial crops than in food crops and livestock numbers.

#### V. Soviet Defense Industries

##### A. Past Trends in Production

The production of Soviet defense industries\* does not exhibit the secular growth trends evident in other Soviet industries. Instead, its fluctuations have reflected changes in external political relations of the USSR, and assessment by the Kremlin of the likelihood of Soviet involvement in hostilities. In 1927 the defense industries were almost nonexistent. Even with a seven-fold increase in 10 years, defense production in 1937 was only about one-eighths of total industrial production. In the next 3 years the Kremlin prepared for the forthcoming war, and defense production more than doubled, an achievement made possible by reallocating resources away from investment and consumption (see Chart 2).\*\* In 1940, defense production accounted for almost a quarter of total industrial output.

Despite territorial losses and the destruction of war, defense production in 1944 was about 78 percent higher than in 1940, when more than half of total Soviet industrial activity was being channeled into output of military end items. As total industrial output had fallen to about

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\* By the expression "production of defense industries" is meant the products of the economy flowing from industrial facilities to the armed forces. If, for instance, a particular plant produces both tanks and tractors, that portion of the plant designed for tank production is (by this definition) a defense industry, and the rest of it is a part of the automotive equipment industry. Thus, by definition, "production of Soviet defense industries" is equal to the "defense" component of gross national product (as portrayed in Chart 2).

\*\* Figure 2 follows p. .



79 percent of the prewar level, the diversion of resources to defense production was even more remarkable.

Demobilization of industry after the war was never as complete in the USSR as in the other major powers. Contrary to trends elsewhere, Soviet defense production is believed to have expanded from 1946 to 1948.\* In the three subsequent years, defense production is estimated to have increased at an accelerating rate as follows: 21 percent in 1949, 22 percent in 1950, and 30 percent in 1951. The larger increase in 1951, when one-fourth of total industrial output consisted of defense production, reflects the Soviet reaction to the outbreak of hostilities in Korea.

B. Prospects for Future Production; 1957.

It is estimated that Soviet defense production will be about 81 percent larger in 1957 than it was in 1951.\*\* If this rate of output is achieved, the value of 1957 defense production would be about 235 billion rubles (1948 prices), probably the equivalent of between 17 billion

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\* An independent index of military production has not been computed for most years prior to 1947. However, the ORR index of industrial output, which excludes military production, moves at the same percentage rate as the official Soviet index of industrial output, which includes military production over the years 1946 through 1948. This identical movement implies that military production increased at the same percentage rate as other industrial output.

\*\* The ORR estimate of 1957 defense production was derived by extrapolating the trends of Soviet defense expenditures from 1948 through 1951. The methodology for this extrapolation is described in Appendix C. The annual rate of growth of defense production established by this method is 11.4 percent. Another technique, which is described in Appendix D, was used to check this estimate. In brief, the latter technique was as follows: first, established the annual rate of increase in the value of an average item--the so-called complexity factor--at 7.8 percent; next, established the annual rate of growth for the quantity of major military end items (planes, naval vessels, artillery, etc.) produced at 3.9 percent; and, finally, combined these two factors. The result is a rate of 12 percent, surprisingly close to the rate established by the first technique.

and 34 billion dollars.\*\*\* This value is more than  $2\frac{3}{4}$  times as great as the value of defense production in 1948 (measured in constant prices) and ~~one-third~~ <sup>one-third</sup> greater than the value in 1944, the peak war year for defense production.

*Quality factor*

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\*\*\* To obtain dollar figures, it was assumed that the ruble-dollar ratio for valuing defense production is no smaller than 14 to 1 and no larger than 7 to 1 (figures rounded).

C. Potential Production in 1957.

Estimates of defense production presented in the preceding section and estimates of the future trends in economic activity presented in I and II, above, are based on an assumption that economic planning will continue to emphasize investment and improvement in living standards simultaneously with greater military production. Implicit in this assumption are the following beliefs: (a) that the Soviet Bloc countries will not engage in further peripheral wars during the period of this estimate and (b) that global war will neither break out nor be considered imminent by the Kremlin during the period of the estimate.

It is possible, however, that developments in the cold war might result in a reorientation of Soviet economic planning toward the maximum possible preparation for global war. If the Soviet economy should be mobilized for war, far greater defense production could be achieved than has been estimated. Drastic reductions in consumption and investment could make available additional resources for defense production.\*

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\* Gross national product would be affected by the difficulties of such a conversion. Curtailment of investment and dislocation during conversion would tend to reduce total output below levels which otherwise would be attained. On the other hand, new resources probably would be introduced into economic processes. These would include the following: retired workers, women, and school-age youths; idle war plants and equipment; and stockpiled materials and capital equipment. It is impossible to evaluate accurately the net results of such changes. However, in order to calculate the maximum resources available for military purposes, analysis is greatly simplified and the likelihood of error is not substantially increased if it is assumed that these two effects offset each other: that is, that gross national product in 1957 would be about the same as predicted in I, above.

It is estimated that both investment and consumption could be cut by half prior to the outbreak of a war.\* Such cutbacks would release enough resources to increase the value of Soviet defense production to 725 billion rubles, or almost 60 percent of gross national product (see Chart 2).\*\* This value is probably the equivalent of between 50 billion and 100 billion dollars.\*\*\* It is about  $4\frac{1}{2}$  times Soviet military production in 1944, the wartime peak.

\* Although consumption in time of war might be reduced to near-starvation levels, there is little chance it would be reduced more than 50 per cent prior to the onset of hostilities. With a 50 per cent reduction, output of consumer goods and services in the USSR would fall to about the 1948 level, although per capita consumption would be lower than in 1948 because of population increases. Whether reduction in investment would be extensive would depend on war strategy. In general, the shorter the length of the anticipated war and the smaller the anticipated distribution to Soviet industrial facilities, the larger the reduction in total investment would be during the period of preparation. If a war of less than 2 or 3 years were estimated, production of most producer goods could be reduced to a small fraction of normal, construction could be curtailed, and strategic stockpiles and working inventories reduced. Deferred replacement could be substantial. By such changes, total investment could be halved.

\*\* These figures represent at best an order of magnitude of maximum total availability of resources for military production at the end of the period of this estimate. It is highly improbable that the Kremlin would plan economic activity to realize this potential, for it would cause a subsequent deterioration in industry that would weaken the long-run power position of the USSR.

\*\*\* Compiled by the same conversion ratios used in the preceding section.